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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/632,704 | 07/31/2003 | Douglas McLaggan | CISCP329/6641 | 3626 |
| 22434 | 7590 | 03/30/2007 | | |
| BEYER WEAVER LLP P.O. BOX 70250 OAKLAND, CA 94612-0250 | | | EXAMINER FAROUL, FARAH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2616 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 03/30/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/632,704

Applicant(s)

MCLAGGAN ET AL.

Examiner

Farah Faroul

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-10, 12, 13, 15-24, 28-32 and 36-42 is/are rejected.
- 7) ☒ Claim(s) 4-6, 11, 14, 25-27, 33-35, 40 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :4/29/2004, 11/1/2004, and 5/19/2005.

DETAILED ACTION

1. Applicant has filed US application No. 10/632,704 on July 31, 2003. The following Office Action is based on the application filed on July 31, 2003, having claims 1-43 and Figures 1a, 1b and 2-6.

Information Disclosure Statement

2. The information disclosure statement filed on November 1, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The patent/application number by Shinomiya et al. (2000/0037165) has does not match the record. It is suggested that applicant provide the correct application number for the reference to be considered.

Drawings

3. The drawings are objected to because figures 2-5 lack a descriptive legend for the acronyms: AVG, AVF, aIP, aMAC, vIP, vMAC, LAN, IP, MAC, GW, GW-ARP, and ARP. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Specification

4. The abstract of the disclosure is objected to because the acronym "MAC" in line 13 needs to be changed to "Medium Access Control (MAC)". Correction is required. See MPEP § 608.01(b).

Claim Objections

5. Claims 1-3, 5, 8, 10, 12, 15-18, 20, 22, 24, 26, 28, 30-32, 34, 37, and 39-41 are objected to because of the following informalities:

For claims 1, 8, 10, 15, 22, 24, 28, 30, 37, and 39, it is suggested that applicant delete the phrase "configured to" to make the claims positive.

For claims 2-3, 12, 17-18, 31-32 and 41, applicant needs to change the acronyms "MAC" and "vMAC" to "Medium Access Control (MAC)" and "virtual Medium Access Control (vMAC)" in all lines of the claims.

For claims 5, 20, 26, and 34, the acronym "ARP" needs to be changed to "Address Resolution Protocol (ARP)" in all lines of the claims.

For claim 16, the acronym "GLBP" to "Gateway Load Balancing Protocol (GLBP)".

In claim 40, the phrase "host to use a the assigned forwarding address" in line 2 has some minor informalities. It is suggested that applicant delete the letter "a" in the phrase.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 8, 15, 22, 28, 30, and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the redundancy group" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 8 recites the limitation "the redundancy group" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 10 recites the limitation "the redundancy group" in lines 10-11. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 15 recites the limitation "the redundancy group" in lines 10-11. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 22 recites the limitation "the redundancy group" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 24 recites the limitation "the redundancy group" in line 9. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 28 recites the limitation "the redundancy group" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 30 recites the limitation "the redundancy group" in line 12. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim 37 recites the limitation "the redundancy group" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is suggested that applicant changes the limitation to "the load-sharing redundancy group" as previously mentioned in the claim.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 15-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The phrase "a computer program product" in line 1 of claims 15-23 is directed to non-statutory subject matter. It is suggested that applicant changes the phrase to "a computer readable medium encoded with instructions executable by a computer" or "a computer readable medium encoded with computer-executable instructions" in all claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 7-8, 10, 12-13, 15, 17-18, 22, 24, 28, 30-32, 36-37, 39 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wils et al. (US 6,397,260 B1) in view of Datta et al. (US 6,295,276 B1) (both references disclosed by applicant).

For claims 1, 10, 15, 24, 30 and 39, Wils discloses assigning a first plurality of forwarding addresses to a first gateway device (column 6, lines 20-46 wherein all routers are configured with an IP address);

Assigning a second plurality of forwarding addresses to a second gateway device (column 6, lines 20-46 wherein all routers are configured with an IP address);

Distributing forwarding addresses to hosts to use in sending packets to the redundancy group (column 7, lines 8-26 wherein MAC addresses are distributed to hosts in response to their ARP requests);

The hosts sending packets using the distributed forwarding addresses (column 7, lines 27-43 wherein data messages sent from the hosts contain the MAC addresses for a particular router in the redundancy group).

For claims 1, 10, 15, 24, 30 and 39, Wils discloses the entire claimed invention except measuring the traffic flow for each of the assigned forwarding addresses; comparing the measured traffic flow to a target traffic flow; and adjusting the traffic flow.

Datta, from the same or similar field of endeavor, discloses a controller sending inquiry packets to a memory buffer monitoring traffic information to compare past and current load on the router. Datta, further discloses, an ARP responder operating by trapping replies to ARP requests sent to the default gateway and modifying the responses to redirect outgoing traffic data to a selected router (column 15, lines 16-51).

Thus, it would have been obvious to someone of ordinary skill in the art to combine the load-sharing method of Wils and the traffic monitoring method of Datta at the time of the invention. The traffic monitoring method of Datta can be implemented into the network of Wils by monitoring and adjusting traffic in the load-sharing network of Wils. The motivation to combine is that it provides an efficient load-balancing method in a virtual gateway.

For claims 2-3, 12, 17, 31-32 and 41, Datta discloses the method of claims 1, 10, 15, 30 and 39 wherein each forwarding address is a MAC address and wherein each MAC address is a vMAC address (Figure 3, wherein MAC-MB is the MAC address for router R1 and virtual router B and MAC-MA is the MAC address for router R2 and virtual router A).

For claims 7, 13, 36 and 42, Wils discloses the method of claims 1, 10, 30 and 39 wherein the first gateway device is a first router and the second gateway device is a second router (column 7, lines 30-33 wherein the gateway devices in the redundancy group is router R1 and router R2).

9. Claims 8-9, 22-23, 28-29 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wils and Datta as applied to claims 1, 15, 24 and 30 above, and further in view of Shinomiya (US 2003/0037165).

For claims 8-9, 22-23, 28-29 and 37-38, Wils and Datta disclose the entire claimed invention except for wherein the redundancy group is configured to provide failover services in the event that one of the gateway devices ceases operation, wherein the target traffic flow is equal distribution of traffic across the first gateway device and

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the second gateway device and further wherein adjusting the traffic flow comprises adjusting the traffic flow across the first gateway device and the second gateway device to more equally distribute the measured traffic flow between the first gateway device and the second gateway device.

Shinomiya, from the same or similar field of endeavor discloses a method involving a virtual router consisting of a master and a backup router wherein flow rate is periodically reviewed so that the plurality of routers operate under equivalent load conditions (paragraph 14, line 1 to paragraph 17, line 10).

Thus, it would have been obvious to someone of ordinary skill in the art to combine the load-sharing method of Shinomiya with the modified system of Wils and Datta at the time of the invention. The method of Shinomiya could be implemented into the modified system of Wils and Datta by adjusting the traffic flow of the modified system. The motivation to combine the load-sharing method of Shinomiya with the modified system of Wils and Datta is that it enables efficient load-sharing in the routing processing (Shinomiya, paragraph 15, lines 4-5).

Allowable Subject Matter

10. Claims 4-6, 11, 14, 19-21, 25-27, 33-35, 40 and 43 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

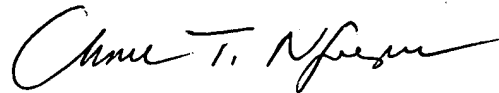
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Alexander et al. (US 7,149,217 B2) and Kadambi et al. (US 6,952,401 B1) are cited to show systems pertinent to applicant's invention. Alexander discloses a load-sharing technique distributing MPLS encapsulated flows across multiple physical links and Kadambi discloses a method for load balancing in a network switch by determining if a packet flow in a network switch exceeds a predetermined threshold.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farah Faroul whose telephone number is 571-270-1421. The examiner can normally be reached on Monday - Friday 6:30 AM - 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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